



Otford Palace

The Archbishop's Palace Conservation Trust

Otford Palace electricity cable insertion Watching Brief 2025 (OPEC25)

CD Shee September 2026

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Issue 2.0
16th October 2026

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1. Summary

In April 2025 a watching brief was held for the insertion of a buried electric cable to the north of the cottage gardens situated between the Gatehouse and the NW Tower of the Tudor Palace remains. This is part of the scheduled area in Otford, Kent, associated with the site of the Tudor palace (SM KE 9, HA 1005197). Permission for the trench was agreed by Heritage England (HE).

A trench was dug to take an electric cable from the Gatehouse, around the back (north of) the three cottages, and then south to insert at the base of the NW Tower. The trench was 0.2m width and 0.4m deep. Behind the gardens of cottages 3 and 2 was a substantial buried deposit of scrap metal, glass and pottery (all late post-medieval), along with some bone and brick. This is likely to be due to activities of the previous cottage residents, along with active burying of objects from the pre-existing 19/20C farm, either during its active life or at the time of levelling the site in 1968.

At the northernmost fence post to the left (east) of the tarmac path leading to cottage 2 a worked ragstone is just visible beneath the soil. This was associated with 3 smaller partially- worked buried ragstones. From here there is a slightly elevated area running north for a few metres, which might be the buried foundation of a wall. As this was only a watching brief, this was not investigated further. Ragstone has been extensively reused in Otford, and as there were farm buildings in this area, even if there is a foundation here that does not necessarily imply it is medieval or Tudor in origin.

The lawn area to the north of cottage 1 was archaeologically sterile compared to the rest of the trench, although it did contain some medieval tile. In contradistinction, the part of the trench parallel and adjacent to the west of the NW Tower contained drier soil with some rubble and broken fragments of brick (70% of all brick found). It was not always possible reliably to distinguish whether the brick was Tudor or post-Tudor in origin. An earlier resistivity study has shown a diffuse high resistance signal here. Plaster remains on the external western wall of the NW Tower garderobe might indicate there was once a small lean-to building attached here and subsequently demolished.

An unexpected finding was that the bulk of the roof tile found to the west of the NW Tower was *medieval* in origin. These tiles might have been re-used from the medieval manor to tile the new Tudor building. However, at 0.7m to the west of the blocked door to the garderobe tower, at a depth of only 0.18m, there is a possible stone surface, 0.66m in width and running in a S-N direction. If this is a foundation, it is conceivable it might have been part of a tiled wooden medieval outlying agricultural building demolished at the time of the Tudor construction. The 2025 excavation in Palace Field (OPF25) uncovered a previously unsuspected medieval wooden tiled agricultural aisled building also to the north of the moated medieval manor.

In summary, the trench for the electric cable has not disturbed any archaeological structures.

There are no findings that should interfere with the existing plans for the development of the NW Tower or the Gatehouse. The APCT has no plans to build to the west of the Tower, but any future development in that area must bear in mind that there could be important archaeological remains in the vicinity of the garderobe.

2. The work proposal

The work was to enable the provision of a mains electrical supply to the NW Tower. Following discussions with UK Power Networks, the intention was to achieve this through a spur cable from the Gatehouse supply that would run underground from the consumer unit in the Gatehouse to a second consumer unit in the Garderobe Tower. The spur would be protected by breakers and fuses.

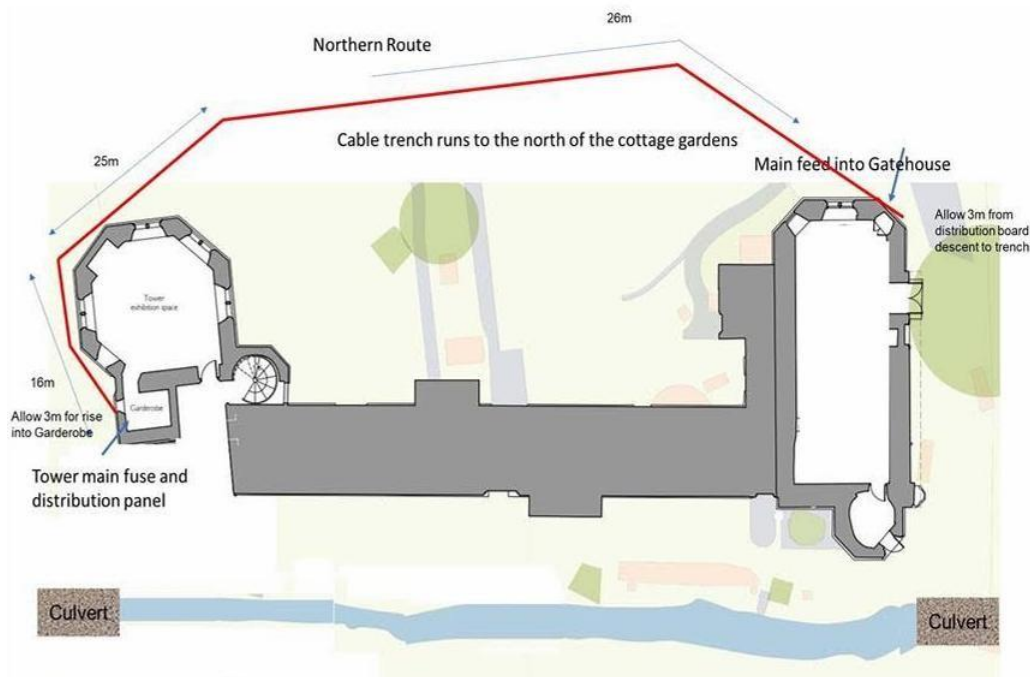


Figure 1: Proposed cable route

Figure 1 shows the proposed route for the electric cable as submitted to HE for consent. The cable was to be buried in a trench running from the Gatehouse, skirting the gardens of numbers 3-1 Castle Farm Cottages, before turning south to run beside the West elevation of the North-West Tower, entering the Garderobe tower through a 50mm hole bored through a mortar joint at the base of the blocked-up doorway.

The trench was planned to be 0.45m deep. Following best practice, the cable would run through a duct and be protected with 100mm of sand or pea gravel and prominent warning tape. The inclusion of a duct would make it possible to install, e.g. a fibre optic cable, along the route later, should this be required.

3. History of the area

The area to the north of Archbishop Wareham's early-16C palace would probably have originally been hardstanding with the main approach to the palace being through the elaborate Gatehouse. The truncated western half of the Gatehouse survives, but the eastern half along with the eastern part of the northern range was demolished several centuries ago, along with the eastern and western ranges. In the 19th and early 20th century there was a farm in the vicinity with barns and agricultural buildings (Fig 2)

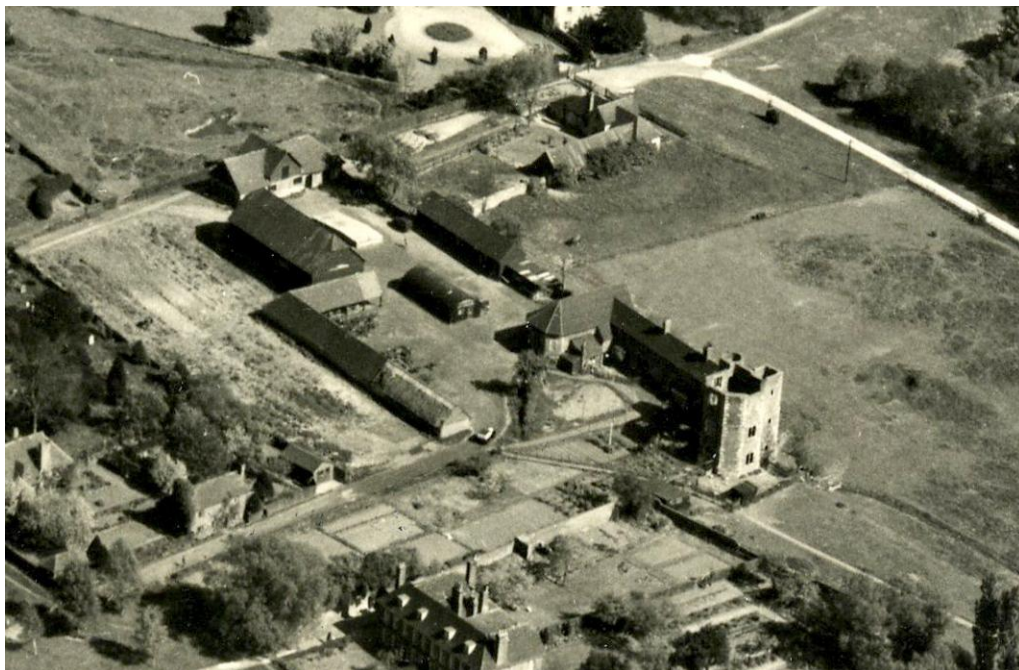


Figure 2: Aerial photograph 1949 looking SE. Farm buildings can be seen in front (north) and to the left (east) of the Tudor NW Tower. Areas of the Green and Palace Approach were then still under cultivation. (Photo courtesy of Ed Thompson)

The area north and east of the Gatehouse was cleared in 1968 when the new church car park and vicarage were built on the site of the derelict Castle-farm buildings (Figs 3 and 4).



Figure 3: A detailed drawing of the barns of Castle Farm which were demolished in 1968 to make way for a new vicarage and car park. The building in the left foreground is the remains of the Palace western Gatehouse. (Image courtesy of "Otford the past in picture")



Figure 4: A 1960s watercolour view of the site of the present vicarage, looking east. Painted before the demolition of the farm buildings. The stone building on the extreme right is the Palace Gatehouse (Painting by E Booth, in private ownership. Not be reproduced without permission)

The area to the north of the cottages, now part of the Palace approach Green, was used as domestic gardens and allotments in the early 20C (Fig 5). During the First and Second World Wars this area was cultivated for food crops.



Figure 5: In the 1920s, allotments covered today's Palace approach. The thatched barn on the left formed part of Castle Farm yard. (Image courtesy of "Otford the past in pictures" P49, ODHS 2004)

In the 19C the surviving Tudor cloisters to the east of the NW Tower were used as cowsheds (Fig 6). They were converted into three farmworkers' cottages in the early 20C.



Figure 6: Victorian photograph of the Palace Approach and, through the gate, the ivy-clad NW Tower. The surviving Tudor cloisters, to the left, were used as cowsheds. Photograph courtesy of Cliff Ward, "A Guided Walk around Otford Palace", P11, ODHS 2017.

4. Methods

On Monday 7 April 2025 I attended the site to observe the digging of the trench to contain the electric cable. I was assisted by two volunteers from the Darenth Valley Landscape Project (DVLP), Geoff Burr and Phil Cole. Two contractors from *Lucas Landscape Maintenance* dug the trench manually and the three members of the watching brief team observed and manually collected finds from the soil deposited at the side of the trench. Samples were stored in labelled trays for later analysis. Four electrical contractors from *Flare Electrical and Solar* were also in attendance and later in the day helped dig the trenches. It was a dry sunny day, and the ground was slightly moist.

The site is about 65m above sea level. Although the contractors dug a continuous trench, for pragmatic and analysis purposes we divided the trench into 4 sections (Fig 7).

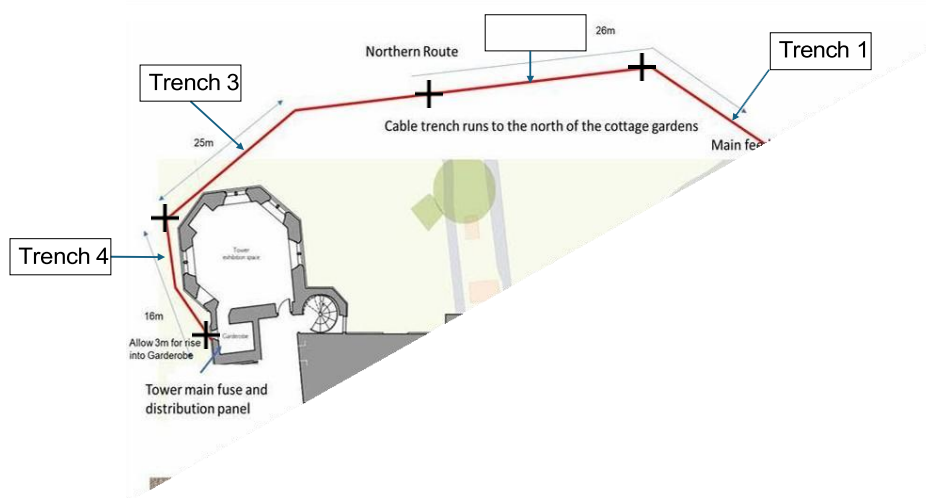


Figure 7: The continuous trench was, for analysis purposes, divided into 4 sections. See text.

Trench 1 ran from the north-western corner of the Gatehouse (TQ52845 59220) to the edge of the garden of Cottage 3 (TQ52834 59227), distance 16m. See Fig 8.



Figure 8: A view of the site of trench 1, taken after it was refilled. The trench ran between the tarred road in the foreground and the fence in the background. The gatehouse is on the left, and behind the fence is the garden of Cottage 3.

Trench 2 then ran outside the garden of Cottage 2, ending at a corner post on the eastern side of the entrance to Cottage 2 (TQ52822 59231), distance 9.3m. See Fig 9.



Figure 9: A view of the site of trench 2, taken after it was refilled. The trench ran from in front of the bush on the left to the corner post of the fence on the far right. Behind the fence is the garden of Cottage 2.

Trench 3 crossed a tarred path at its origin to run diagonally across a green grass triangle (to the north of the tree) and ending at the far corner of the northern fence of Cottage 1(TQ52804 59218), distance 22.8m. See Fig 10.



Figure 10: A view of the site of trench 3, taken after it was refilled. The trench ran from the fence post on the left, across the small, tarred path, to cross the lawn to the right of the small tree on the lawn. Behind the distant fence/hedge is the garden of Cottage 1

Trench 4 then ran south and 0.4-0.6m from and parallel to the western wall of the NW Tower, ending at the base of the blind door to the garderobe tower (TQ52809 59202), distance 13.4m. See fig 11.



Figure 11: A view of the site of trench 4, taken after it was refilled. The trench ran from the fence post on the left, across in front of the garden of Cottage 1, then close to the western base of the NW Tower, to end in front of the blocked door of the Garderobe

The contractors dug Trench 1 and part of Trench 2 on the first day (7/4/25). The following day, which was dry and sunny, they rushed to complete the remaining trenches with help from the electrical contractors. Pickaxes were used to dig trench 4, which probably resulted in breakage of some of the buried CBM (ceramic building material).

At the end of day two between 15.00 and 16.00 the contractors placed the protective coil in the base of the trench. Both ends of the coil were left exposed and the main length was covered with about 0.1m of soil which was in turn covered with yellow warning tape. The trench was then refilled. The electric cable (approximately 25mm diameter) was then run through the protective coil. The next day (9/4/25) the electrical contractors returned to connect the proximal cable to the source at the base of the Gatehouse, and the distal end through the base of the NW Tower garderobe. Once inside the Garderobe tower the cable was routed vertically upwards to the distribution unit. This was mounted on an insulating wooden board, attached to the uneven wall on plastic standoffs.

Unworked flints and stones were discarded and buried on site. Excavated soil was examined manually by members of the watching brief team and the finds placed in labelled trays. Some of the finds were cleaned and sorted on site on 9/4/25. Subsequently these and all other finds were transported to the Tea Barn, Castle Farm, Shoreham for later cleaning, sorting and analysis. This was done by DVLP volunteers (Geoff Burr, Phil Cole and me) with the kind permission of Anne Sassin. On subsequent analysis, details of all finds were entered on an excel spreadsheet.

5. Description of the trenches

For most of its length the trench was about 0.2m width. As opposed to the predicted depth of 0.45m, in practice the depth was usually 0.4m. The topsoil with the subsoil to a total depth of 0.1m was designated context 001, and the remaining 0.3m soil as 002.

As previously mentioned, the continuous trench was pragmatically designated trenches 1-4.

5.1 Trench 1

The topsoil (1001) was dark and fertile and contained few inclusions. Context 1002 consisted of dark soil with a moderate concentration of medium and large flints (all unworked), and some rubble. Fig 12 shows that there was little stratigraphic difference in trench 1.



Figure 12: The stratigraphy in trench 1 looked uniform

There were a few patchy small areas of clay. Inclusions included copious metal, brick, pottery and glass. Most of the pottery found was concentrated in context 1002 7.5-9.3m from the origin of the trench.

5.2 Trench 2

The topsoil and subsoil both consisted of non-sticky dark loam. There were no large flints, and 2002 context contained large quantities of scrap metal, pottery and glass. At TQ52825 59220 at 0.18m below the surface there was a large modern concrete and stone conglomeration, sub- rectangular in shape. This was not fully uncovered, and the trench was slightly looped towards the south and west to bypass it (Fig 13).



Figure 13: Trench 2 was looped to the right (south and west) to bypass a modern concrete deposit

In the midsection of Trench 2 at TQ52827 59233 there was a deposit of light-yellow sand 0.05m below the surface, about 0.07m in depth, with length of about 1.3m (Fig 14).



Figure 14: Trench 2 contained a deposit of light-coloured sand, seen just below the surface in the bottom centre of the picture. The protective coil to be used for the electric cable can be seen on the left.

At the junction of trenches 2 and 3, at TQ52825 59240, there was a ragstone just below the surface. Fig 15 shows this area before the trench was dug and the ragstone uncovered.



Figure 15: Pre-trench view of the area where ragstone was found (spot marked in blue in front of the tree and just to the right of the car). The tree and end of the fence are situated at what was to be the junction between trenches 2 and 3. This is just to the left of Cottage 2

The ragstone was uncovered and left *in situ* (Fig 16). This was a worked stone with height 23cm, and was square in shape 38 x 38 cm, but with a sloping cut on the eastern side.



Figure 16: The ragstone at junction of trenches 2 and 3

Adjacent to the large stone were 3 smaller pieces of ragstone (Fig 17). Two of these were undressed and measured respectively 18 x 15cm and 25 x 15cm. The third stone was partially worked and measured 17 x 17cm with height 12cm.



Figure 17: Three pieces of ragstone, here seen removed, had been found packed around the larger stone seen in the background

A few metres to the north of the ragstone deposit, on the drive, there is a suggestion that there may be another sub-soil large stone. Both these stones are on the top of a slight ridge, and it is possible there may be a wall foundation here. As this was a watching brief and not a formal excavation, no attempt was made to investigate this further.

The three pieces of ragstone were replaced alongside the large stone, and after the cable had been inserted these were recovered with soil.

5.3 Trench 3

Trench 3 contained dark loamy soil, again with little difference in stratigraphy between the topsoil and rest of the trench. Compared to the other trenches this one was conspicuous by its lack of finds. About 20m from its origin the trench crossed a small non-functioning concrete drain, cracked on the surface, and at a depth of 0,4m.

By the path gatepost seen in Fig 18, the trench encountered what at first was thought to be a buried brick surface. However, it transpired that this was a pile of 7 modern bricks used as packing around the base of the gatepost. These were subsequently reinstated, with two retained for later analysis.

5.4 Trench 4

This was dug in haste by the contractors towards the end of day two, including the use of pickaxes. Ideally, this should have been hand-dug to reduce the risk of damaging finds. The topsoil here was drier and grittier than elsewhere. The lower soil was dry, lighter brown and less loamy than elsewhere and contained a greater concentration of ceramic building material (CBM) than the other trenches (Fig 18).



Figure 18: View of Trench 4 running from the public path towards the NW Tower, some orange tile is visible on the spoil heap, but this does not reflect the amount of CBM originally present, as the three volunteers doing the watching brief collected CBM by hand as it was unearthed.

An unexpected finding was a small stone “pavement” 0.18m below the surface, and about 0.7m from the base of the Garderobe tower (Fig 19).



Figure 19: Trench 4 showing the layer of stones 0.18m below the surface, adjacent to the N marker and near the base of the blocked door to the Garderobe Tower. The rather dry gritty soil containing some rubble is visible on the spoil heap on the right.

The platform/pavement from top to bottom (east to west) measured 0.66m and appeared to run at roughly right angles across the dug trench (Fig 19). Accurate assessment was not possible due to the narrow width of the trench (0.2m) and the limitation that this was only a watching brief and not an opportunity carefully to excavate and expose the feature. The layer of stones seemed to consist of some shaped ragstones, but also some irregularly shaped stones (fig 20). There was no obvious mortar seen, but a wall foundation cannot be ruled out without further exposing and excavating the surface. Other possibilities are that this could be the remains of a path, or a localized deposit of stone. This area was refilled the same afternoon.



Figure 20: Trench 4 showing a closer view of the flat stone “platform”. The very limited exposure of this structure suggests that there is soil both at the top (east) and bottom (west) of the stones, and that it could be running parallel to the tower wall.

6. The Finds

In considering the finds one can think of the 4 subdivisions of the trench as roughly corresponding to: Trench 1= adjacent to the garden of Cottage 3; Trench 2= adjacent to the garden of Cottage 2; Trench 3 = open lawn behind Cottage1; Trench 4= west of Cottage 1 garden and the NW Tower.

Few finds were in the topsoil (contexts 1001-4001), with most being in the bottom 0.3m of the trench (contexts 1002-4002)

6.1 Bone/ Shell

No bone or shell was found in the topsoil. The quantities found in the 4 sub-divisions of the trench are listed in Table 1.

Context	number	Weight (g)	% of total weight
1002	104	706	60
2002	40	241	20
3002	0	0	0
4002	20	235	20
total	164	1182	100

Table 1 : Bone and shell found in the 4 sub-divisions of the trench

By weight, 60% of the bone was found in trench 1. Most of this consisted of fragments of mammalian bone, with 5 bones (114g) showing cut marks. The shell in this trench weighed 36g and consisted of 4 oyster, 2 winkle and 2 Jacob's scallops.

Trench 2 bone was also largely mammalian (4 with cut marks), and the shell consisted of 6 periwinkles (10g). There was no bone or shell from trench 3. Trench 4 contained no shell, 1 sheep's tooth, and the remainder were mammalian bones (2 with saw marks). Bone and shell were discarded after analysis, except for some bones with cut marks.

The small amounts of shell found would be compatible with domestic consumption in nearby cottages and does not necessarily relate to the Tudor palace. Similarly, the bone is probably associated with the 19/20C farm, or domestic consumption.

6.2 Metal

No metal was found in the topsoil, and the quantities found in the trenches are listed in Table 2.

context	number	Weight (g)	% of total weight
1002	222	18,135	59
2002	57	10,376	33
3002	1	1418	5
4002	34	885	3
total	314	30,814	100

Table 2: Metal found in the 4 sub-divisions of the trench

There was over 30kg of buried metal, mostly bulky rusted ferrous objects. By weight 92% of the finds were particularly concentrated in the soil behind cottages 3 and 2 (over 10kg metal from each of these small 0.2m width trenches). Following analysis, most of the metal was discarded.

Trench 1 contained the most metal, predominantly ferrous, including scrap metal, iron sheets rods and bars, along with nails and bolts. Among the heaviest individual objects were an iron fence post (1803g) and an iron spade handle (1009g). There were 3 modern cast iron drainpipes (883g). This was formerly the site of a 19C-early 20C farmyard. It was common practice on Victorian farms (and even some modern farms) to bury scrap metal. The buildings here were demolished and the site levelled in the 1960s, and it is possible much of the metal was in fact buried at that stage. Reinforcing this idea, is that among the finds were some car components, including a steering rod (524g), suspension leaf spring (408g) and brake shoe (215g).

Three of the metal small finds from Trench 1 have been retained. These were: a Victorian copper alloy general service button, all ranks, with Queen's crown (5g); a worn "bun head" Victorian halfpenny (5g); and a late 19C/early 20C copper alloy pocket watch key winder (<1g).

Trench 2 contents were like those in Trench 1. Among the heaviest objects were a large cast-iron sheet (1064g) and 3 distorted rusted ferrous bars (each >1000g). A large toe-clip horseshoe with 3 nails and 2 toe clips (847g) was retained in the APCT collection, as was a silver-plate teaspoon, maker's marks unreadable (14g).

Some of the scrap metal found in trenches 1 and 2 can be seen in Fig 21.



Figure 21: This shows an example of some of the scrap metal found in Trenches 1 and 2.

Trench 3 contained only one metal object. This was a solid lump of cast iron and ferrous slag (1418g).

Trench 4, furthest from the site of the old farmyard, contained less than 1kg metal in total. The two heaviest objects here were a cast iron drainpipe weighing 224g (non-Tudor), and a collection of 17 ferrous nails (144g) of indeterminate age. Among the miscellaneous metal finds were a naval button (2g), 2 rusted modern padlocks (165g) and 9 modern aluminium ring pulls from drink cans.

6.3 Stone

Unworked and unmortared flint and stone were not weighed and were discarded. No worked flints were identified. Ragstones were kept for later analysis. The 3 pieces of ragstone at the junction of trenches 2 and 3 (see Figs 16 and 17) were measured but not weighed before being reburied.

Apart from 3 ragstone chippings (66g) found in the topsoil of trench 4 (context 4001) all the other finds were below the topsoil. The ragstone found in these trenches is summarised in Table 3.

context	Number	Weight (g)	% of total weight
1002	4	3445	36
2002	1	2728	28
3002	0	0	0
4002	13	3403	36
total	18	9576	100

Table 3: Ragstone found in the 4 sub-divisions of the trench

Of the 4 ragstones found in trench 1, two were possibly partially worked. The large stone in trench 2 had been worked and squared. There were no stone finds in trench 3. From trench 4 there were 10 small fragments of unworked ragstone (873g) and 2 larger pieces with some worked surfaces. A third ragstone from Trench 4 (1078g) had been worked, with one smooth rounded side, possibly part of a column? (retained).

Apart from ragstone, trench 1002 also contained 20 small pieces of slate (417g). Trench 2002 contained a fragment of broken stone finial (6g) and 2 fossil sponges (58g). In trench 4 were found one piece of slate (5g) and one calcined flint (2g).

Ragstone is not found in the immediate vicinity. The nearest known quarry is at Dryhill, Sevenoaks, 3 miles from Otford. The ragstone found in the cable trench is likely to have come from the Tudor Palace, and in turn those stones may have been reused from the original medieval palace to the south, where ragstone can still be seen in the few remaining walls. The medieval ragstone might originally have been quarried from Sevenoaks and/or recycled from the nearby Roman villa, currently being excavated in Church Field.

6.4 Glass

In all, over 8 kg of glass was retrieved from the trenches. 98% of the glass recovered was bottle- glass, predominantly 19-20C. The only glass found in the topsoil layer was 5 small sherds (12g) of 20C bottle-glass found in Trench 3. The rest of the glass was found in the soil within the trenches. The bottle-glass finds are listed in Table 4

context	number	Weight (g)	% of total weight
1002	367	6113	70
2002	51	1892	22
3002	0	0	0
4002	63	694	8
total	481	8699	100

Table 4: Bottle-glass found in the 4 sub-divisions of the trench

Most of the bottle-glass by weight (70%) was found in trench 1 behind Cottage 3, with 22% behind Cottage 2 (trench 2), and little elsewhere (Table 4). An example of some of the glass found is shown in Fig 22.



Figure 22: An example of some of the glass found in trench 2.

As shown in table 4, the total bottle glass from the trenches weighed 8699g. Of this, 76% was clear glass, with 14% green, 7.5% brown and only 2.5% assorted shades of blue. Among the Identifiable objects were small medicine bottles (some with graduated scales), scent

containers, small storage jars and glass stoppers. A few specimens had identifiable inscriptions, for instance, on an intact clear bottle marked "The Chislehurst Mineral Water works", and a sherd marked "Wilkes Kilmaronock whiskey". Much bottle glass could only be identified as coming from bottles of indeterminate size. However, there were several bottle bases and necks of various sizes.

Almost all the bottle glass could be clearly identified as being post-Tudor, predominantly 19- 20C in origin, but a few sherds could have been 18C. After analysis, most glass was discarded, but selected specimens have been retained in the APCT collection.

All the window glass that was recovered was clear, with no large sherds (Table 5). In total it weighed 173g, which constituted only 2% by weight of all the glass recovered.

context	number	Weight (g)	% of total weight
1002	7	21	12
2002	10	84	49
3002	0	0	0
4002	16	68	39
total	33	173	100

Table 5: Window glass found in the 4 sub-divisions of the trench

In summary, over 9kg of glass was found. Most of this (98%) was 19-20C bottle glass, predominantly clear, and found just outside the cottage gardens. The localized finds suggest deliberate burial rather than the more scattered finds one might expect if this was a result of plough scatter.

6.5 Pottery

Total pottery finds are shown in Table 6. Most (80%) was found in trench 1, with smaller amounts in trenches 2 and 4. Pottery was described using the Canterbury Archaeological Trust (CAT) coding. All the finds were classed as LPM (Late Post Medieval).

Context	No of sherds	Weight (g)	% of total weight
1002	749	6979	80
2002	49	912	10
3002	3	8	<1
4002	67	839	10
Total	868	8738	100

Table 6: The chart shows the number and weight of pottery found in the 4 sub-divisions of the trench.

Trench 1.

The type of pottery found in trench 1 is shown in Table 7. Nearly 7 kg was found in total.

<u>Fabric Code</u>	<u>Expansion</u>	<u>Date</u>	<u>number</u>	<u>Weight (g)</u>	<u>Weight %</u>
LPM5	Yellow ware	1825/50-1900	0	0	
LPM7B	Bone China	1770-1925+	38	404	6
LPM7BJ	Bone China transfer printed	1770-1925+	0	0	
LPM10	Modern English stoneware	1800-1940	11	240	3
LPM10A	Modern English stoneware: ginger beer bottles, inkwells etc	1800-1940	7	90	1
LPM10B	Modern English stoneware: paste/ointment pots, jam jars etc	1800-1940	50	1362	19
LPM11A	Later creamware: plain	1775-1825	16	128	<1
LPM14	Staffs "Ironstone"-type white earthenware	1825-1900	456	2599	37
LPM14T	Refined whiteware: transfer-printed	1807-1900	125	982	14
LPM18AB	Wedgewood-style black basalts: glazed	1780-1880	5	62	1
LPM23	Notts/Derby stoneware: later-types	1775-1925	6	406	6
LPM26	Porous yellow/buff Terra Cotta	1800-1920	28	514	7
Unknown modern		20C	7	192	3
total			749	6979	

Table 7: Pottery found in context 1002. The fabric code is that used by CAT (Canterbury Archaeology Trust).

By weight, the commonest type of pottery was Staffordshire “Ironstone”-like white earthenware (37%). These were largely sherds of domestic crockery. Next commonest were modern English stoneware (19%), consisting mostly of ointment pots and small jars. Domestic transfer-printed refined whiteware constituted 14% of the total. Fig 23 shows some of the pottery found in trench 1.

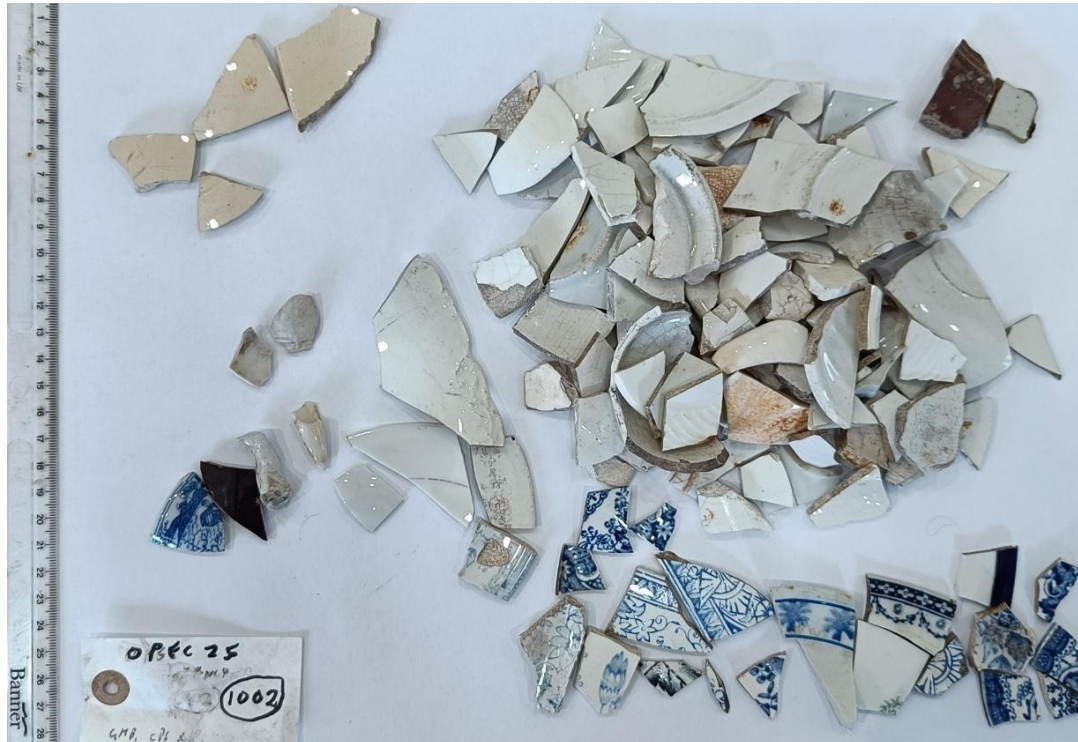


Figure 23: A sample of some of the pottery found in trench 1

Trench 2

Trench 2 contained considerably less pottery than trench 1, with a total weight of 912g (10 % of the total (Table 8). There was also a smaller variety of types of pottery found than in trench 1. All the pottery was LPM, and, in accord with trench 1, the commonest type was Staffordshire

“Ironstone”-type white earthenware (32% by weight of total pottery in trench 2). The next commonest was LPM10A, modern English stoneware (25%), including a complete inkwell

(104g) and a ginger beer bottle (also 104g), inscribed “(REGD) R. WHITE LONDON”. 18 % of the total pottery in trench 2 was LPM10A, modern English stoneware (ointment pots, jam jars etc).

<u>Fabric Code</u>	<u>Expansion</u>	<u>Date</u>	<u>number</u>	<u>Weight (g)</u>	<u>Weight %</u>
LPM5	Yellow ware	1825/50-1900	1	6	<1
LPM7B	Bone China	1770-1925+	2	8	<1
LPM7BJ	Bone China transfer printed	1770-1925+	1	6	<1
LPM10	Modern English stoneware	1800-1940	0	0	0
LPM10A	Modern English stoneware: ginger beer bottles, inkwells etc	1800-1940	3	230	25
LPM10B	Modern English stoneware: paste/ointment pots, jam jars etc	1800-1940	9	164	18
LPM11A	Later creamware: plain	1775-1825	1	16	2
LPM14	Staffs "Ironstone"-type white earthenware	1825-1900	23	296	32
LPM14T	Refined whiteware: transfer-printed	1807-1900	0	0	0
LPM18AB	Wedgewood-style black basaltes: glazed	1780-1880	0	0	0
LPM23	Notts/derby stoneware: later-types	1775-1925	0	0	0
LPM26	Porous yellow/buff Terra Cotta	1800-1920	7	151	17
Unknown modern		20C	2	35	4
total			49	912	

Table 8: Pottery found in context 2002. The fabric code is that used by CAT (Canterbury Archaeology Trust).

Fig 24 shows some of the pottery found in trench 2.



Figure 24: An example of some of the pottery found in Trench 2.

Trench 3

This contained little in the way of overall finds with only 2 pieces of modern English stoneware (5g), and 1 small piece of glazed earthenware (3g) (retained for further analysis).

Trench 4

The pottery from trench 4 is shown in table 9. The sherds found here were like those found in trenches 1 and 2, but with a smaller variety of types. Of note is that despite this trench being the closest to the Tudor NW Tower, all the pottery dated from the 19-20C.

<u>Fabric Code</u>	<u>Expansion</u>	<u>Date</u>	<u>number</u>	<u>Weight (g)</u>	<u>Weight %</u>
LPM5	Yellow ware	1825/50-1900	4	34	4
LPM10B	Modern English stoneware: paste/ointment pots, jam jars etc	1800-1940	14	340	41
LPM14	Staffs "Ironstone"-type white earthenware	1825-1900	25	179	21
LPM14T	Refined whiteware: transfer-printed	1807-1900	16	55	6
LPM26	Porous yellow/buff Terra Cotta	1800-1920	8	231	28
total			67	839	100

Table 9: Pottery found in context 4002. The fabric code is that used by CAT (Canterbury Archaeology Trust).

In summary, the whole trench contained over 8 kg of pottery, the majority of which was found in trench 1, outside Cottage 3. None of the pottery was medieval or Tudor and most was 19-20C, of a domestic nature, and likely to be discards from the nearby cottages.

6.6 Ceramic Building material (CBM)

A total of 487 pieces of brick were recovered by hand, weighing in total 38,098g (average weight 80g). There were 105 pieces of tile, weighing 15,301g (average weight 48g). Specimens were sorted into types by DVLP volunteers under the guidance of Ann Isenberg. The different types were given a code based on colour and fabric (matrix and inclusions). The details were recorded in an excel spreadsheet taking account of guidance issued by the Archaeological Ceramic Building Materials Group, 2007.

Anne Sassin and Ann Isenberg have created a type series for CBM fabrics (brick and tile) based on local finds in the Darenth Valley, including finds from excavations at Lullingstone Castle, Eynsford (LULC22), St Johns Jerusalem, Sutton at Hone (SJJ23) and Otford Palace Field (OPF25). There is a site archive held for these specimens, which is, inevitably, biased towards Roman, Medieval and Tudor specimens, rather than post-Tudor and modern. A limitation of this archive is that there is a lack of full dimensions to associate form with fabric. Furthermore, some dates were assigned based on context phasing. Nevertheless, this type series, although to some extent "work in progress", has proved useful in cataloguing and dating the finds from this

watching brief. A list of the fabric types and characteristics is appended (Appendix 1).

6.7 Ceramic Building material (CBM) Brick

There were very few intact bricks, or bricks where the whole length could be measured. The Tudor bricks on the NW Tower are not of uniform colour (Fig 25), which means distinguishing fragments of Tudor brick from modern brick by colour can be problematic. In dating the brick fragments the nature of the fabric has been important.



Figure 25: The Tudor bricks on the NW Tower show a variety of colours such as pale orange, orange/red, purple and black/vitrified.

The number and weight of the brick fragments are shown in Table 10.

context	number	Weight g	Average weight g	Weight as % total
1001	0	0	0	0
2001	0	0	0	0
3001	0	0	0	0
4001	106	1063	10	3
1002	76	5473	72	14
2002	16	2928	183	8
3002	93	2485	26	7
4002	196	26149	133	69
total	487	38098	78	100

Table 10: The chart shows the number and weight of the brick fragments found in the four sub-divisions of the trench.

The topsoil (001) contained very little brick, with none in trenches 1-3 and some small fragments (average weight only 10 g) in trench 4 (Table 10).

The subsoil (002) in trenches 1-3 showed more brick in trench 1 (14% of total) than in trenches 2 and 3. However, the brick fragments in trench 2 were generally larger, with an average weight of 183g (Table 10). The greatest concentration of brick was in trench 4 (over 26 kg), which accounted for 69% of the total by weight. The average weight of the bricks in trench 4 (133g) was higher than that in trenches 1 and 3.

As mentioned, dating the brick can be problematic. Even in the obviously modern bricks the size of the fragments was such that it was rare to see evidence of the expected depression or indentation (“frog”). The breakdown by number and weight of the different bricks along with a probable date is shown in the Tables 11-15 below (see Table 16 for overall summary). See Appendix 1 for explanation of the fabric types.

Fabric type	Probable date	number	Weight g	Mean weight g	percent total weight
E	Mediaeval	3	15	5	<1
D	Tudor	16	959	59	16
P1	Unknown/burnt	4	907	226	17
A	Post Mediaeval/ Tudor?	6	949	158	17
V	unknown	10	902	90	16
I	unknown	3	443	147	8
C	unknown	33	1232	37	23
?	Modern	1	66	66	1
total		76	5473	72	100

Table 11: Layer 1002 Brick: fabric, probable date, and quantity

Fabric type	Probable date	number	Weight g	Mean weight g	percent total weight
D	Tudor	3	987	329	34
C	unknown	10	1005	101	34
V	unknown	1	80	80	2
P1	Unknown/burnt	1	626	626	21
V4	Modern	1	225	225	8
total		16	2928	183	100

Table 12: Layer 2002 Brick: fabric, probable date, and quantity

Fabric type	Probable date	number	Weight g	Mean weight g	percent total weight
E	Mediaeval	14	276	20	11
D	Tudor	28	344	12	14
A	Post Mediaeval/ Tudor?	18	420	23	17
C	unknown	2	121	61	5
V	unknown	29	1088	38	44
V4	Modern	1	27	27	1
P1	Unknown/burnt	1	209	209	8
total		93	2485	27	100

Table 13: Layer 3002 Brick: fabric, probable date, and quantity

Fabric type	Probable date	number	Weight g	Mean weight g	percent total weight
E	Mediaeval	9	38	4	4
D	Tudor	22	157	7	15
A	Post Mediaeval/ Tudor?	19	327	17	31
C	unknown	24	188	8	18
V	unknown	26	326	13	31
?	unknown	6	27	5	3
total		106	1063	10	100

Table 14: Layer 4001 Brick: fabric, probable date, and quantity

Fabric type	Probable date	number	Weight g	Mean weight g	percent total weight
E	Mediaeval	9	978	109	4
B	Tudor	5	492	98	2
D	Tudor	61	8339	137	32
A	Post Mediaeval/ Tudor?	25	4751	190	18
C	unknown	27	3496	129	13
I	unknown	6	185	31	1
P1	Unknown/burnt	1	327	327	1
?	Modern London clay	1	328	328	1
V	unknown	55	6438	117	25
V4	modern	5	815	163	3
Total		196	26,149	133	100

Table 15: Layer 4002 Brick: fabric, probable date, and quantity

6.8 Discussion of brick findings

It is perhaps more useful to look at Table 16 which shows a summary of the trench finds for brick.

Context	Medieval/likely medieval %	Tudor/likely Tudor %	Post -Med/ modern %	Unknown/burnt %	Total %
1002	<1	35	1	64	100
2002	0	34	8	57	100
3002	11	31	1	57	100
4001	4	46	4	50	100
4002	5	52	4	40	100

Table 16: Bricks: Distribution in contexts by likely historic period (% by weight for each context)

There was little evidence of obviously medieval brick (Table 16). This is not surprising, as the original moated medieval manor was well to the south of this northern Tudor range. Furthermore, the original manor was largely constructed in stone.

By weight, in the various trenches, between a third to a half of the brick was probably Tudor. This is to be expected, as the extensive Tudor ranges were largely built in brick and most of these were subsequently dismantled. The small size of the brick fragments meant that there were not enough thickness measurements from which to draw conclusions as to the respective thicknesses of the different fabrics. For this reason, brick thickness measurements have not been entered in the above tables.

In many cases it was not possible with the small fragment sizes clearly to distinguish between Tudor and more modern brick, at least within the limitations of our current type series. The presence of bricks in trenches 1 and 2 would be expected, as the area of and to the north of the cottage gardens seems to have been used as a general dumping area in the 19-20C, as judged by the high concentration there of scrap metal, glass and pottery. The demolition of extensive farm buildings in the vicinity in the mid 20C would have also contributed.

The highest concentration of brick by weight (69%) was found in the subsoil trench 4 (Table 10). This fits with the area of high resistance noted to the west of the NW Tower in a high-resolution resistivity survey of the Palace site carried out in Summer 2023 by Anne Sassin and volunteers from the DVLP (Fig 26).



Figure 26: Resistivity survey 2023. The NW Tower is in the top centre of the image. Areas of high resistivity (white) can be seen surrounding the Tower. The linear line running to the left (west) is a known buried conduit, and the buried foundations of the western range can be seen running south of the Tower. (Image courtesy of Anne Sassin and DVLP)

A 1949 aerial photograph of the Tower (Fig 27) shows a cleared compacted-looking area to the west of the Tower. This is in the region of high resistance seen in Fig 26 and is also the site cut by the brick-rich trench 4.



Figure 27: Aerial photograph 1949 looking N. There is a cleared compacted area to the left (west) of the NW Tower. This may have been used as part of the working farm at the time. There also appears to have been a boundary hedge to the west of the Tower (not now present). (Photo courtesy of Ed Thompson).

The bricks and high resistance to the west of the Tower might also suggest the demolition of a previous structure. On the external west wall of the garderobe tower there appears to be localised remains of old plaster (Fig 28). Perhaps this indicates a Tudor or post-Tudor “lean-to” structure, subsequently demolished?



Figure 28: 2025 photograph of external western wall of NW Tower garderobe. To the right (south) of the small window there are the remains of a plaster coat. Could there have been a lean-to building here?

In trench 4 just over half the bricks were probably Tudor in origin (Table 16), but unfortunately in 40% of the bricks here it was not possible to distinguish clearly between Tudor and modern fragments.

6.9 Ceramic Building material (CBM) Tile

No tile fragments were found in the topsoil. In the subsoil (002) the smallest number of tile fragments were found in trench 1, although as these were above average in weight, they contributed to the heaviest total weight by trench (32% of total weight). The number and weight of the tile fragments are shown in Table 17. Trench 3 contained the most fragments, but as they were small, they contributed only 16% of the total weight (Table 17).

context	number	Weight g	Average weight g	Weight as % total
1002	42	4874	116	32
2002	51	3749	74	25
3002	118	2520	21	16
4002	105	4158	40	27
total	316	15301	48	100

Table 17: This shows the number and weight of tile fragments found in the four sub-divisions of the trench

Some of the roof tiles showed evidence of peg holes, but not enough as to help in identification by period. The form of roof tiles showed little change from the 12th until the 19th century, and dating is inevitably subjective. Medieval tile tends to be “cruder” and often has a grey core and rough finish.

The breakdown by number and weight of the different tiles along with a probable date is shown in the Tables 18-21 below. For details of the fabric types, see Appendix 1. A summary by likely historic period of the trench tile finds is shown in Table 22.

Fabric type	Probable date	number	Weight g	Form	Thickness mm	percent total weight
EE	Roman	7	879	Tegulae	22-24	18
E1	Medieval	2	246	Roof tile	12	5
F	Medieval	1	31	Roof tile	10	<1
V2	Medieval	1	37	Roof tile	16	<1
?	Medieval/Tudor	2	41	Roof tile	12	1
N	Med-Post-medieval	6	292	Floor tile	18-25	6
V1	late medieval/Tudor	2	113	Roof tile	14	2
G	modern	17	3065	Roof tile	10-16	63
P-type	Unknown burnt	5	170	Roof tile	10-22	3
Total		42	4874			100

Table 18: Layer 1002 Tile: Fabric type, possible date, and further details

Fabric type	Probable date	number	Weight g	Form	Thickness mm	percent total weight
E	Medieval?	2	10	Roof tile	?	<1
J1	Medieval?	2	65	Roof tile	10	2
G	modern	41	1605	Roof tile	12-18	43
?	19C	3	1954	Firebrick	35	52
P1	Unknown burnt	3	115	Tile	?	3
Total		51	3749			100

Table 19: Layer 2002 Tile: Fabric type, possible date, and further details

Fabric type	Probable date	number	Weight g	Form	Thickness mm	percent total weight
E	Medieval?	13	259	Roof tile	12	12
E2	Medieval	67	1446	Roof tile	8-14	57
T	Medieval?	1	25	Roof tile	?	1
J1	Medieval?	12	267	Roof tile	8-14	11
V2	Medieval	5	131	Roof tile	10-12	5
D1	Tudor	12	308	Roof tile	12	12
N	Tudor?	3	84	Floor tile	?	3
		118	2520			100

Table 20: Layer 3002 Tile: Fabric type, possible date, and further details

Fabric type	Probable date	number	Weight g	Form	Thickness mm	percent total weight
E	Medieval?	13	521	Roof tile	10-22	13
E2	Medieval	32	1371	Roof tile	10-14	33
E3	Medieval	5	458	Roof tile	12-14	11
J2	Medieval	2	81	Roof tile	10	2
T	Medieval	21	47	Roof tile	12	1
V2	Medieval	1	31	Roof tile	14	<1
P	Burnt medieval	4	695	Roof tile	10-16	3
Q	Medieval	3	203	Roof tile	14	5
V1	late med/Tudor	2	147	Roof tile	14-16	4
E1	Medieval	1	240	tile	?	6
D1	Tudor	14	14	Roof tile	?	<1
N	Med-Post-medieval	4	695	Floor tile	10-16	17
R	unknown	3	227	Roof tile	12-16	5
Total		105	4158			100

Table 21: Layer 4002 Tile: Fabric type, possible date, and further details

6.10 Discussion of tile findings

By weight, the tile fragments were fairly evenly spread out over the 4 sub-divisions of the trench, but with rather fewer in trench 3, which was furthest from the Tudor range (Table 17). This was in contradistinction to the brick, which was most concentrated in trench 4, along the west of and adjacent to the NW Tower (Table 10).

It is perhaps more useful to look at Table 22 which shows a summary by likely historic period of the trench tile finds.

Context	Roman %	Medieval/likely medieval %	Tudor/likely Tudor %	Post Tudor/modern	Unknown	Total %
1002	18	5	9	63	3	100
2002	0	2	0	95	3	100
3002	0	85	15	0	0	100
4002	0	74	21	0	5	100

Table 22: Tile: Distribution in contexts by likely historic period (% by weight for each context)

The only Roman tiles were 7 fragments of roof tile (tegulae) found in trench 1 (Tables 18 and 22). Small quantities of Roman CBM have previously been found in the vicinity of the palace (most recently in trench 2 of an excavation of a medieval agricultural building in Palace Field-OPF25). This is not unexpected, as there are the remains of a large Roman villa nearby, to the east of the archiepiscopal manor. However, the presence of buried foundations of an outlying Roman building on the Palace site cannot be fully excluded.

Most of the tiles found behind the cottages in trenches 1 and 2 were post-Tudor or modern, with few likely to be Tudor or medieval (Table 22). This is in accord with the other modern finds there (see earlier discussion).

The most striking finding seen in Table 22 is the preponderance of probable medieval tile in trenches 3 and 4 adjacent to the NW Tower. There is also a marked lack of modern tile here. The original medieval stone-built moated manor to the south was roofed with tiles, and as some of these buildings were being demolished it is possible

that intact medieval tiles may have been re-used in roofing the 16C Tudor ranges. Another possibility is that there might originally have been a nearby tiled medieval wooden agricultural building that was levelled when the Tudor extension was built. A wooden building would explain the disparity between the large number of medieval tiles here with the absence of ragstone and of medieval brick.

We had formerly assumed that the medieval manor outbuildings would have been situated to the east of the residential palace, which was the usual custom. However, the recent excavation of the stone foundations of a likely wooden and tiled medieval agricultural building on Palace Field (OPF25), suggests that some of the outlying ancillary buildings were to the *north* of the moated manor. Perhaps the previously mentioned buried stone feature just to the west of the north-west Tower garderobe (Figs 19 and 20) might be the foundation of a demolished pre-Tudor outbuilding?

Acknowledgement

I would like to thank Geoff Burr and Phil Cole for their help in conducting the watching brief, and for helping to clean and sort the finds. I would also like to thank Anne Sassin and the DVLP for the use of the Tea Barn for analysing and cataloguing the artefacts. Ann Isenberg provided invaluable help in sorting and categorising the CBM brick and tile.

Appendix A Fabric classifications

This outlines the fabric classifications used for analysis of the brick and tile. For the background to this classification see text under report section “Ceramic Building material” (With thanks to Anne Isenberg for providing this Appendix).

	Code	Colour	Matrix	Fine inclusions	Coarse inclusions	Moulding sand	Comments	period	Notes
Brick classifications									
Brick type only	A	Red, also some purplish red with grey	Fine sandy clay	Fine sparse quartz	None		Very hard smooth and fine	Post medieval	N.B colours could be driven by the requirement at that time
Local sandy	B	Orange red	Fine sandy clay	Sparse quartz	Sparse shell	Rare	Very soft feel	Tudor	NO TYPE IDENTIFIED AT OPF25
Brick type only	C	Orange red	Fine, sandy	Fine sandy inclusions	Sparse grits	Very fine	Sandy and rough		
Brick type only	D	Brownish Orange	Fine sandy clay	Brick - very sparse	Tile example - cream pellets	Rare	Very soft feel. Tile fabric harder than brick which is very soft	Tudor	
Brick type only	E	Salmon pink/orange/brown	Fine sandy clay	Sparse	Chalk and flints	Mix of grain sizes	Soft and crumbly	Medieval	
Brick type only	I	Brown-red range	Fine sandy clay	Coarse sand	Flint grits	Small grains	Abrasive and pumice like	U	

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Brick only	P1	Burnt	Clay	Sandy inclusions	Mixture			U
Brick only	U	Yellow brown	Iron panning	Sparse	Cream pellets	Fine if any	Soft, pumice like	U
Brick type only	V	Red	Sandy clay	Sandy inclusion s possible quartz	Small grits	Fine sandy	Soft, pumice like	
Brick only NEW TYPE - found at OPF	V4	Pinkish red	crushed clay - machine compressed	Mortar	Mortar crushed	None noted	Hard, lumpy	Modern

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Tile classifications									
Tile only	D1	Brownish Orange	fine sandy clay, sometimes visibly finely micaceous	Tile example - low density of sand,	None	Fine sandy	Soft feel, soapy and possible slight appearance of a dark coating but not a glaze or slip	Tudor	
Tile only	E	Orange	Fine sandy clay	Sparse sandy	None	Fine sandy		Medieval?	
Tile only	E1	Red orange	Sandy clay	Sandy small quartz	Mix of grits	Mix of grain sizes	Biscuit-like appearance with soapy feel	Medieval	
Tile only	E2	Pale orange/orange	Clay	Sandy small quartz	Sparse grits		Base sand is very coarse and used mix of grains. Top has a soapy smooth feel	Medieval	distinctive to OBP
Tile only	E3	Pale orange	Clay	Sparse quartz	None		Soft, soapy	Medieval	
Roman	EE	Red, orange, pink, cerise; some with grey core	Smooth, fine clay varying from soft and powdery to hard and dense		No inclusions			Roman	All in 207 context bag, not reference collection. Overlap with LV19 codes D

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Tile only	F	Pale orangey pink with grey traces, possibly pale brown	Fine sandy clay	Sparse/low/moderate medium (rarely coarse quartz)	Small grits, sparse chalk pellets	Mix of grain sizes	Soft, smooth	Medieval	
Tile only	G	Orange, brownish orange	Fine sandy clay	Very fine sandy inclusions and quartz	Rare red pellets c 2mm	Rare	Smooth feel, very hard with possible coating in black or grey	Modern	Mostly found in OPEC25
Tile only	J1	red orange with grey core	Clay	Very few very fine, quartz	Red pellets c 2mm, small shell chips None	Small black grains	Slightly soapy, compact	Medieval?	
Tile	J2	orange red with grey core	Clay	Very few, very fine, quartz	None	None noted	Rough, abrasive	Medieval	
Floor tile only	N	Pink/orange red	Clay	Sparse sand and quartz	Sparse red clay pellet	Fine if any	Rough, abrasive	Medieval to post-medieval	
Tile only	P	Burnt	Clay	Sandy	Grits and chalks where visible			Medieval	
Tile only	Q	Dark red/cream with red/orange core	Clay	Fine sandy inclusions	Chalk, cream pellets and flints	Fine if any	Outside is sandy on both sides and abrasive	U	
Tile only	R	Buff colour	Clay	Fine chalking inclusions	Sparse pellets	Fine if any	Overfired	U	
Tile only	T	Pinkish red	Clay	None	Large cream inclusions, possible chalk	None noted		Medieval	

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Tile only	V1	Red orange, some with a trace of grey core	Sandy clay	Sparse sand and quartz	Sparse grits	Fine sandy	Not thin like a medieval tile but coarser sand on top and bottom	Late medieval	
Tile only	V2	Red brown	Sandy clay	Sparse sandy	Red pellets and small grits	Fine and sparse	Brittle	Medieval	